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Kylee Kasselmann

Fort Hays State University, kakasselmann@mail.fhsu.edu

Christine Hober

Fort Hays State University, clhober@fhsu.edu

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Effects of Kangaroo Care on Physiological Function of Pre-Term Infants

Brittney Dockendorf, FHNS & Kylee Kasselmann, FHNS

Fort Hays State University, Department of Nursing

Abstract

Objective: To determine if kangaroo care (KC) positively impacts physiological function in pre-term infants.

Design: Quasi-experimental, explanatory

Setting: Wesley Medical Center Neonatal Intensive Care Unit (NICU)

Participants: Pre-term infants in the NICU, mothers, and nurses.

Methods: Educate mothers on how to perform KC in an effort to measure its effects on physiological function in pre-term infants in the NICU.

Results/Conclusions: Pending results and data collection.



<https://www.asaagoodliving.co.uk/jammy/healthy-living/premature-baby-facts>

Introduction

Out of 139 million births a year, more than 20 million infants have low birth weight, which is often associated with pre-term birth (Bera et al., 2014). A pre-term infant is defined as one born prior to 37 weeks gestational. Pre-term infant births can create stress for the parents and the pre-term infant, which can affect the physiological function of the infant. A major problem with pre-term infants is that they have the inability to control their physiological functions, such as heart rate, respiration rate, oxygen saturation, and body temperature, which can ultimately lead to mortality. To reduce these complications, nurses are implementing new effective interventions, one being **KC** (Bera et al., 2014). KC is a technique that involves placing a newborn infant in intimate skin-to-skin contact with the mother's bare chest. With this practice, mothers can improve the physiological function of their pre-term infants.

Purpose: The purpose of this study is to determine if KC impacts physiological function in pre-term infants.

Key Terms (Operational Definitions)

KC: Technique that involves placing a newborn infant in intimate skin-to-skin contact with the mother's bare chest and abdomen with frequent and preferably exclusive breast-feeding (Bera et al., 2014).

Pre-term infants: A newborn infant born prior to 37 weeks of gestation (Cho et al, 2016).

Physiological Function: A balance that occurs in response to stimulation from the interaction between humans and their environment. They are measured by obtaining the heart rate, respiration rate, oxygen saturation, and body temperature.

Framework

The theoretical framework for this study is based on Linda Mefford's Theory of Health Promotion for Preterm Infants (2004). Based on this framework, KC as an intervention attempts to promote wellness in the pre-term infant where they may be lacking in physiological function stability.

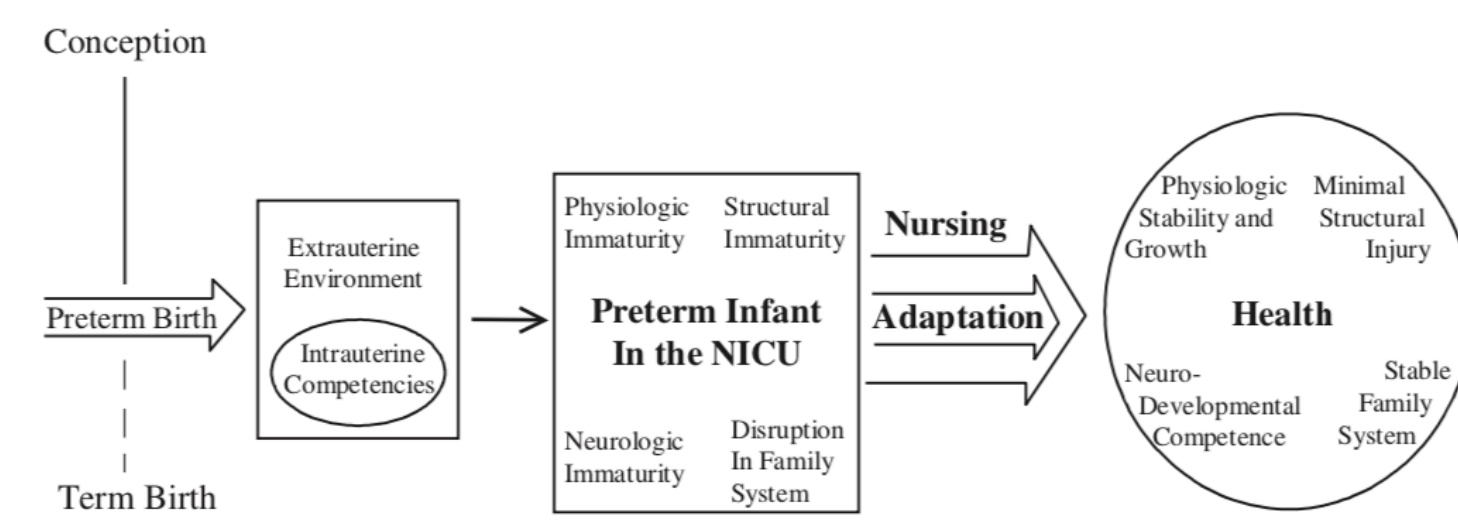


Figure 2. Conceptual Diagram of the Theory of Health Promotion for Preterm Infants Based on Levine's Conservation Model of Nursing
NOTE: From "The Relationship of Nursing Care to Health Outcomes of Preterm Infants: Testing a Theory of Health Promotion for Preterm Infants Based on Levine's Conservation Model of Nursing" (p. 24), by L. C. Mefford, 1999, *Dissertation Abstracts International*, 60(09B), 4522. Copyright 1999 by L. C. Mefford. Adapted with permission.

Methodology

Design: Quasi-experimental, explanatory

Independent Variable: KC

Dependent Variable: Physiological functions of heart rate, respiration rate, oxygen saturation, and body temperature

Intervention: Using KC in pre-term infants to promote increased physiological function

Proposed Research Question: In pre-term infants, does KC attribute to improved physiological function of pre-term infants?



<https://www.hopkinsallchildrens.org/ACH-News/General-News/Kangaroo-Care-Creates-Bond-Between-Baby-and-Parent>

Literature Sources

KC is a simple intervention that can be practiced in any situation and has been proven to enhance infant wellbeing. Pre-term infants who received KC showed modest but statistically significant improvement in physiological function (Bera et al., 2014). Implementing KC in the NICU allows for a safe and feasible intervention that contributes positively to the pre-term infant's health (Cho et al, 2016).

Sample & Setting: Pre-term infants and mothers in the NICU at Wesley Medical Center.

Ethical Considerations: Seeking full review for IRB approval from Wesley Medical Center, Nursing Department, and Fort Hays State University.

Data Collection

N= 70

n= 35 mothers who participated in KC.

n= 35 mothers who did not participated in KC.

Mothers will be educated on the proper implementation of KC. This will be done using demonstration and visual aids. Mothers will return demonstrate proper KC technique. The pre-term infant's heart rate, respiration rate, oxygen saturation, and body temperature will be measured at time 0, time 1, time 2 and time 3.

Results/Finding

Projected Data Analysis Method

A dependent paired T-test will be used to compare improved physiological function using statistics of pre-term infants who receive KC, and those pre-term infants who do not.

Literature Findings

Findings from multiples studies proposed that KC was found to be positively correlated with pre-term infant's body temperature, respiration rate, heart rate, and oxygen saturation. Physiological functions were assessed immediately before and after KC for 3 consecutive days. Axillary temperature was measured by a digital thermometer in °C. Respiration rate was assessed by monitoring chest movements for one minute. Heart rate and oxygen saturation were taken with a pulse oximeter (Bera et al., 2014). According to Bera et al., (2014) the average temperature rose by 0.4°C, respiration rate by 3 per minute, heart rate by 5 beats per minute, and the oxygen saturation by 5% following implementation of KC after just three days.



<https://www.whattoexpect.com/first-year/understanding-infant-growth-charts.aspx>



<https://www.nurse.com/blog/2017/11/16/5-areas-to-focus-on-when-diapering-a-nicu-baby/>

Discussion

Implications For Nursing

If KC is found to positively impact the physiological function of pre-term infants in the NICU, it can be implemented into nursing curriculum and nursing practices. Kangaroo care may be one of the most effective nursing interventions in the NICU for the care of pre-term infants and their mothers (Cho et al, 2016). Not only is it effective for mothers and babies, but it can be done in any hospital without extra cost.

Conclusion

Pending results and data collection. Other studies have found that implementing KC in pre-term infants has positively influenced their physiological function.

For future research, it is recommended that this study be conducted on a larger scale in a wider variety of facilities, so that these findings can be applied to a greater population.

References

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